

Projectile Motion Practice Problems:
CP and Honors Physics

1. A pelican flying along a horizontal path drops a fish from a height of 5.4 m. The fish travels 8.0 m horizontally before it hits the water below. What is the pelican's speed? [7.6 m/s]
2. If the pelican in question 1 was traveling at the same speed but was only 2.7 m above the water, how far would the fish travel horizontally before hitting the water below? [5.6 m]
3. In a scene in an action movie, a stuntman jumps from the top of one building to the top of another building 4.0 m away. After a running start, he leaps at a velocity of 5.0 m/s at an angle of 15° with respect to the flat roof. Will he make it to the other roof, which is 2.5 m lower than the building he jumps from? (Hint: Calculate the stuntman's Δy and compare it to 2.5 m.) [Yes, $\Delta y = -2.3$ m]
4. A spy in a speed boat is being chased down a river by government officials in a faster craft. Just as the officials' boat pulls up next to the spy's boat, both boats reach the edge of a 5.0 m waterfall. If the spy's speed is 15 m/s and the two officials' speed is 26 m/s, how far apart will the two vessels be when they land below the waterfall? [11 m]
5. A golf ball with an initial angle of 34° lands exactly 240 m down the range on a level course.
 - a. Neglecting air resistance, what initial speed would achieve this result? [50 m/s]
 - b. Using the speed determined in item a, find the maximum height reached by the ball. [40 m]